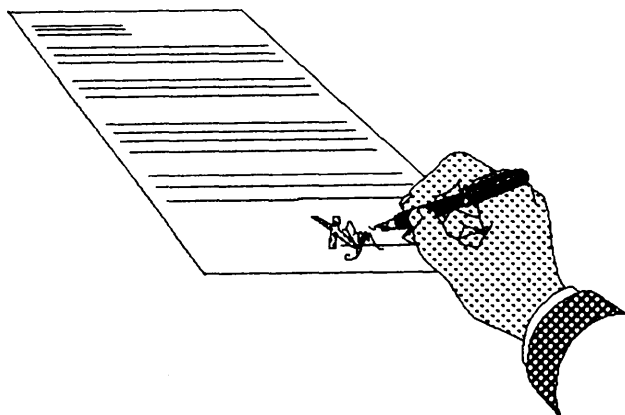


CHAPTER 2

TECHNICAL ADMINISTRATION

Technical administration is basically the filling out of paperwork required to complete a task. Whether the task is maintenance or repair in nature, it is not fully completed until all documenting paperwork has been finalized. You, as the technician, are responsible for ensuring that all paperwork is completed for each task you are assigned.



THE MAINTENANCE DATA SYSTEM (MDS)

The Maintenance Data System (MDS) provides a means of recording maintenance actions in substantial detail. This allows a variety of information concerning these actions and the performance of equipment involved to be retrieved. (In older documents, you may see the system referred to as MDCS.) One of the major objectives of the MDS is to provide the capability of reporting configuration changes. In the following paragraphs, we will describe MDS subsystems that you will use frequently.

MAINTENANCE DATA SYSTEM (MDS) FORMS

In the following paragraphs we will briefly discuss the MDS forms that you as an ET are most likely to come across in your daily routine. For more in-depth information on the MDS forms, we recommend that you read chapter 9 of OPNAVINST 4790.4, *Ships' Maintenance and Material Management (3-M) Manual*. Because the supply forms associated with the

MDS have been discussed in other training manuals, we will not cover them here.

Ship's Maintenance Action Form-OPNAV 4790/2K

This form, shown in figure 2-1, is the primary maintenance form. It is used by maintenance personnel to report (1) deferred maintenance actions and (2) all completed maintenance actions (including previously deferred actions).

The OPNAV 47902K contains six sections that require entries, depending on the type of maintenance action being reported. The form is printed on paper that does not require carbon to make multiple copies. Whenever you make an entry on this form, print the information, using all CAPITAL letters. Be sure the information is legible and inserted within the "tic" marks. If you make an error, line it out using a single line and enter the correct information.

Supplemental Form-OPNAV 4790/2L

This form, illustrated in figure 2-2, is used to provide amplifying information for a maintenance action reported on a 2K form. For example, you may include on the 2L information from drawings, listings, associated parts placement, part labels, and the like, for use by a repair activity.

When you need to use an OPNAV 4790/2L with an OPNAV 4790/2K, enter in block 35 of the 2K the notation "2L USED."

Maintenance Planning and Estimating Form-OPNAV 4790/2P

This form is used with an OPNAV 4790/2K that defers maintenance to be done by an IMA under the Intermediate Maintenance Management System (IMMS). It provides information necessary to allow screening and planning to be done in detail.

Figure 2-3 illustrates this form as it may appear when planning and scheduling have been completed by a repair activity. Chapter 12 of OPNAVINST 4790.4B contains detailed information on the use of the form.

Figure 2-1.—OPNAV 4790/2K, Ship's Maintenance Action Form.

OPNAV 4790/2L (Rev 4-73) S/N 0107-LF-770-3080		SUPPLEMENTAL FORM (2-LIMA)		
SECTION I. IDENTIFICATION				
A SHIP'S NAME	B HULL NUMBER	C SHIP'S UIC	<div style="text-align: center; font-weight: bold; font-size: x-small;">JOB CONTROL NUMBER</div> <div style="display: flex; justify-content: space-between; font-size: x-small;"> D WORK CENTER E JOB SEQ NO </div>	
		F CONTINUATION FOR <input type="checkbox"/> 2K <input type="checkbox"/> 2L <input type="checkbox"/> 2P		
SECTION II. REMARKS/SKETCHES				
G				
SECTION III. AUTHENTICATION				
H FIRST CONTACT/MAINTENANCE MAN (Print)	I DATE YR DAY	J SECOND CONTACT/SUPERVISOR (Print)	K DATE YR DAY	

Figure 2-2.—OPNAV 4790/2L Supplemental Form.

SECTION I. PLANNING

JOB CONTROL NUMBER				
A SHIP'S NAME USS WHITE PLAINS	B. HULL NUMBER AFS 4			
1 SHIP'S UIC 05835	2 WORK CENTER EE011608			
3 JOB SEQ NO				
4 PERIODIC MAINTENANCE REQUIREMENT	5 PERIODICITY			
6 YMM ISSUED	7 SPECIAL DATA			
<table border="0" style="width:100%;"> <tr> <td style="width:33%; vertical-align: top;"> 8 SCREENING ACTION a. <input type="checkbox"/> IUC <input type="checkbox"/> TYCOM b. <input checked="" type="checkbox"/> DEPOT ACCOMPLISH c. <input checked="" type="checkbox"/> IMA ACCOMPLISH d. <input type="checkbox"/> TS/NAVSEC/NOSSO/ETC e. <input type="checkbox"/> SHIPS FORCE (IMA) (DEPT) ASSIST f. <input type="checkbox"/> SHIP TO SHIP g. <input type="checkbox"/> ACCOMPLISH WITH MODIFICATIONS h. <input type="checkbox"/> DISAPPROVE </td> <td style="width:33%; vertical-align: top;"> 9 QUALITY ASSURANCE REQUIREMENTS a. <input type="checkbox"/> SUBSAFE b. <input type="checkbox"/> LEVEL I c. <input type="checkbox"/> NUCLEAR LEVEL I d. <input type="checkbox"/> NON DESTRUCT TEST e. <input type="checkbox"/> NUCLEAR WORK PROCEDURES f. <input type="checkbox"/> SUBMARINE ANTENNA ENGINEERING DIVISION </td> <td style="width:33%; vertical-align: top;"> 10 SPECIAL REQUIREMENTS a. <input checked="" type="checkbox"/> 03 KEY EVENT b. <input type="checkbox"/> SPECIAL INTEREST c. <input type="checkbox"/> DRY DOCK REQUIRED d. <input checked="" type="checkbox"/> PRE OVERHAUL TEST REQUIRED e. <input checked="" type="checkbox"/> POST OVERHAUL TEST REQUIRED f. <input type="checkbox"/> DEPARTURE TEST REQUIRED </td> </tr> </table>		8 SCREENING ACTION a. <input type="checkbox"/> IUC <input type="checkbox"/> TYCOM b. <input checked="" type="checkbox"/> DEPOT ACCOMPLISH c. <input checked="" type="checkbox"/> IMA ACCOMPLISH d. <input type="checkbox"/> TS/NAVSEC/NOSSO/ETC e. <input type="checkbox"/> SHIPS FORCE (IMA) (DEPT) ASSIST f. <input type="checkbox"/> SHIP TO SHIP g. <input type="checkbox"/> ACCOMPLISH WITH MODIFICATIONS h. <input type="checkbox"/> DISAPPROVE	9 QUALITY ASSURANCE REQUIREMENTS a. <input type="checkbox"/> SUBSAFE b. <input type="checkbox"/> LEVEL I c. <input type="checkbox"/> NUCLEAR LEVEL I d. <input type="checkbox"/> NON DESTRUCT TEST e. <input type="checkbox"/> NUCLEAR WORK PROCEDURES f. <input type="checkbox"/> SUBMARINE ANTENNA ENGINEERING DIVISION	10 SPECIAL REQUIREMENTS a. <input checked="" type="checkbox"/> 03 KEY EVENT b. <input type="checkbox"/> SPECIAL INTEREST c. <input type="checkbox"/> DRY DOCK REQUIRED d. <input checked="" type="checkbox"/> PRE OVERHAUL TEST REQUIRED e. <input checked="" type="checkbox"/> POST OVERHAUL TEST REQUIRED f. <input type="checkbox"/> DEPARTURE TEST REQUIRED
8 SCREENING ACTION a. <input type="checkbox"/> IUC <input type="checkbox"/> TYCOM b. <input checked="" type="checkbox"/> DEPOT ACCOMPLISH c. <input checked="" type="checkbox"/> IMA ACCOMPLISH d. <input type="checkbox"/> TS/NAVSEC/NOSSO/ETC e. <input type="checkbox"/> SHIPS FORCE (IMA) (DEPT) ASSIST f. <input type="checkbox"/> SHIP TO SHIP g. <input type="checkbox"/> ACCOMPLISH WITH MODIFICATIONS h. <input type="checkbox"/> DISAPPROVE	9 QUALITY ASSURANCE REQUIREMENTS a. <input type="checkbox"/> SUBSAFE b. <input type="checkbox"/> LEVEL I c. <input type="checkbox"/> NUCLEAR LEVEL I d. <input type="checkbox"/> NON DESTRUCT TEST e. <input type="checkbox"/> NUCLEAR WORK PROCEDURES f. <input type="checkbox"/> SUBMARINE ANTENNA ENGINEERING DIVISION	10 SPECIAL REQUIREMENTS a. <input checked="" type="checkbox"/> 03 KEY EVENT b. <input type="checkbox"/> SPECIAL INTEREST c. <input type="checkbox"/> DRY DOCK REQUIRED d. <input checked="" type="checkbox"/> PRE OVERHAUL TEST REQUIRED e. <input checked="" type="checkbox"/> POST OVERHAUL TEST REQUIRED f. <input type="checkbox"/> DEPARTURE TEST REQUIRED		
C IUC SIGNATURE	D TYCOM SIGNATURE			
11 NORMALLY DONE BY <input type="checkbox"/> S/F <input type="checkbox"/> IMA <input type="checkbox"/> DEPOT				

SECTION II. SCHEDULING

12 LEAD WORK CENTER 38A	13 SCHED START DATE YR 62 DA 45	14 SCHED COMP DATE YR 62 DA 01	15 EST MHRS 40	16 KEY OP	17 TASK
18 ASST WORK CENTER 51A	19 SCHED START DATE YR 62 DA 47	20 SCHED COMP DATE YR 62 DA 58	21 EST MHRS 04	22 KEY OP	23 TASK
24 ASST WORK CENTER 52A	25 SCHED START DATE YR 62 DA 45	26 SCHED COMP DATE YR 62 DA 59	27 EST MHRS 01	28 KEY OP	29 TASK
30 ASST WORK CENTER	31 SCHED START DATE YR DA	32 SCHED COMP DATE YR DA	33 EST MHRS	34 KEY OP	35 TASK
36 ASST WORK CENTER	37 SCHED START DATE YR DA	38 SCHED COMP DATE YR DA	39 EST MHRS	40 KEY OP	41 TASK
42 ASST WORK CENTER	43 SCHED START DATE YR DA	44 SCHED COMP DATE YR DA	45 EST MHRS	46 KEY OP	47 TASK

SECTION III. TECHNICAL DOCUMENTATION

48	ON BOARD YES NO

SECTION IV. IUC/REPAIR ACTIVITY/TYCOM REMARKS

IMA LIMIT REPAIRS TO 600 \$ ROV MATERIAL	

SECTION V. SUPPLEMENTAL PLANNING

50 EST MANDAYS	51 EST MANDAYS COST \$	52 EST MATERIAL COST \$	53 EST TOTAL COST \$	54

Figure 2-3.—OPNAV 4790/2P, Maintenance Planning and Estimating Form.

OPNAV 4790/2Q (11-73) S/N 0107-LF-770-1000															AUTOMATED SHIP'S MAINTENANCE ACTION														
SECTION I. IDENTIFICATION																													
JOB CONTROL NUMBER															COMP														
1 SHIP'S UIC					2 WORK CENTER					3 JOB SEQ. NO.					4 APL / AEL														
5 SHIP'S NAME										6 EQUIPMENT NOUN NAME										7 WHEN Y STAT & CAUS & DEFA 10 11 12									
8 HULL NUMBER										9 IDENT EQUIPMENT SERIAL NUMBER										14 IIC									
15 SAFETY HAZARD										16 LOCATION (Compartment deck frame side)										17 WHEN DISCOVERED DATE									
CONFIGURATION CHANGE															FOR INSURV USE														
18 ALTERATIONS (SHIPALT OR DALT Field Changes etc.)															19 ***					20 INSURV NUMBER					21 SUFFIX 22 U 23 S 24 P/P				
SECTION II. DEFERRAL ACTION																													
25 S/F MHRS EXP					26 DEFER DATE YR DAY					27 S/F MHRS REM					28 DEADLINE DATE YR DAY														
SECTION III. COMPLETED ACTION																													
29 ACT TEN 30 S/F MHRS										31 COMPLETION DATE YR DAY					32 ACT MAINT TIME					33 TI 34 METER READING									
SECTION IV. REMARKS/DESCRIPTION																													
35 REMARKS/DESCRIPTION																													
SECTION V. SUPPLEMENTARY INFORMATION																													
37 CSMP SUM															46 SPEC PURP A B C D E F G H I J K L														
38 FIRST CONTACT/MAINT MAN (Print)										39 RATE					40 SECOND CONTACT/SUPERVISOR (Print)										41 PRM 42 YR 43 INTEGRATED PRIORITY				
C DIV INIT					D DEPT INIT					E COMMANDING OFFICER'S SIGNATURE										F TYCOM AUTHORIZATION					SCREENING 44 HUC 45 TYCOM				
SECTION VI. REPAIR ACTIVITY PLANNING/ACTION																													
48 REPAIR W/C					49 EST MHRS					51 ASST REPAIR W/C					52 ASST EST MHRS					53 SCHED START DATE YR DAY					54 SCHED COMP DATE YR DAY				
55 REPAIR ACTIVITY UIC										56 WORK REQ ROUTINE					57 EST MANDAYS					58 EST MANDAYCOST \$					59 EST MATERIALCOST \$				
60 EST TOTALCOST \$										61 JOB ORDER NUMBER										62 LEAD P&E CODE					63 DATE OF EST YR DAY				
64 FINAL ACT					65 MHRS EXPENDED					66 DATE COMPLETED YR DAY					G COMPLETED BY (Signature - Rate)										H ACCEPTED BY (Signature - Rate/ Rank)				

Figure 2-4.—OPNAV 4790/2Q, Automated Ship's Maintenance Action Form

Automated Ship's Maintenance Action Form-OPNAV 4790/2Q

This form, shown in figure 2-4, is basically the same as the 4790/2K, except that it is filled in by computer. It contains the same information as the 2K. You may enter

additional information by hand as necessary. You may also use this form as an automated work request and in preparation for INSURV.

NOTE: Data entered into the computer is checked for accuracy and completeness. Elements that contain

errors are brought to the attention of the operator for correction as required by OPNAVINST 4790.4.

Automated Work Request (AWR)-OPNAV 4790/2R

This form is produced by the computer and combines the basic information submitted on the OPNAV 4790/2K and the planning information submitted on the OPNAV 4790/2P, if the 2P has been entered into the IMMS. A simulated AWR, produced under the Shipboard Non-Tactical ADP System (SNAP), is a valid work request and will be accepted by all involved activities (see figure 2-5). An AWR may be used for any of the following purposes:

- To describe all work and planning information relating to a specific job
- To enter planning information relating to a specific job with the OPNAV 4790/2K replacing the OPNAV 4790/2P
- By an IMA to conduct advance planning of a tended unit's availability

Chapter 12 of OPNAVINST 4790.4 contains detailed information on this form.

Ship's Configuration Change Form-OPNAV 4790/CK and Ship's Configuration Change Form Continuation Page-OPNAV 4790/CK(C)

These forms shown in figures 2-6A and 2-6B are used to report configuration changes at the individual equipment level.

When you use the OPNAV 4790/CK form, you do not need to document the associated maintenance action on an OPNAV 4790/2K form. The OPNAV 4790/CK form is used both as a closing deferral for reporting the accomplishment of a previously deferred maintenance action that results in a configuration change, and as a completed maintenance action (no prior deferral) reporting a configuration change.

A configuration change occurs whenever a maintenance action results in the following situations:

1. Addition or installation of any new equipment.
2. Deletion or removal of any installed equipment.
3. Replacement or exchange of any equipment. A replacement or exchange is reported as the removal of an installed equipment and installation of a new equipment.

4. Modification of any installed equipment. A modification results from a maintenance action that alters the design or operating characteristics of the equipment, or a maintenance action in which nonstandard replacement parts (not identified on the APL or in the technical manual) are used.

5. Relocation of any equipment.

6. Accomplishment of any alteration directive.

Two excellent documents that provide block-by-block instructions for completing the OPNAV 4790/CK are OPNAVINST 4790.4 (3-M Manual) and SPCCINST 4441.170, the *COSAL Use and Maintenance Manual*.

CURRENT SHIP'S MAINTENANCE PROJECT (CSMP)

The CSMP is an administrative system that provides the command and work center with the management data needed for the systematic accomplishment of repair and alteration of ship's hull, installed equipment, and material. It identifies at any one time the backlog of deferred maintenance for each work center. The MDS provides the means for gathering this information. If the information provided is not accurate or up-to-date or is improperly used by supervisors or maintenance technicians, the CSMP system is worthless.

The usefulness of the MDS depends upon your accuracy, thoroughness, and timeliness in reporting information. The MDS is a system in which potential benefits are directly proportional to the efforts applied. Programs for improving reliability, maintainability, and logistic support of fleet equipment depend on how conscientiously you adhere to reporting procedures.

PLANNED MAINTENANCE SYSTEM (PMS)

The Planned Maintenance System provides each command with a simple standard means for planning, scheduling, controlling, and performing planned maintenance of all equipment. PMS maintenance actions are the minimum required to maintain the equipment in a fully operable condition. Maintenance procedures are contained on cards called "maintenance requirement cards" (MRCs).

Maintenance Requirement Cards (MRCs)

The MRCs provide detailed information for performing preventive maintenance. They state exactly

AWR OPNAV 4790/2R (11-73) S/N 0107-LF-770-3004															AUTOMATED WORK REQUEST																																																																					
SECTION I. IDENTIFICATION																									COMP																																																											
<div style="display: flex; justify-content: space-between;"> <div> JOB CONTROL NUMBER 1. SHIP'S UIC: 05835 2. WORK CENTER: EE01 3. JOB SEQ. NUMBER: 1608 4. APL AEL: 673820134 </div> <div> EQUIPMENT 5. EQUIPMENT NAME: COMPRESSOR MTR 13. IDENT/EQUIP. SERIAL NO.: NO2 25HP </div> </div>																																																																																				
<div style="display: flex; justify-content: space-between;"> <div> SHIP'S NAME 6. HULL NUMBER: AFS-4 14. EIC: T505 16. LOCATION: REEFER RM 6 96 2 E </div> <div> SAFETY HAZARD 15. SAFETY HAZARD: </div> </div>																																																																																				
<div style="display: flex; justify-content: space-between;"> <div> CONFIGURATION CHANGES (SHIPALTS, ORDALTS, Field Changes, etc) 18. CONFIGURATION CHANGES: </div> <div> FOR INSURV BOARD USE 19. "I": 20. INSURV NUMBER: 21. SUFFIX: 22. U: 23. S: 24. P/F: </div> </div>																																																																																				
SECTION II. DEFERRAL ACTION																																																																																				
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SECTION III. COMPLETED ACTION																																																																																				
<div style="display: flex; justify-content: space-between;"> <div> ACT. TRN 29. ACT. TRN: S/F MHRS 30. S/F MHRS: </div> <div> COMPLETION DATE 31. COMPLETION DATE: YR DAY ACTIVE MAINT. 32. ACTIVE MAINT. TIME: </div> <div> FOR SELECTED EQUIPMENT ONLY 33. TRL: 34. METER READING: </div> </div>																																																																																				
SECTION IV. REMARKS/DESCRIPTION																																																																																				
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<div style="display: flex; justify-content: space-between;"> <div> CSMP SUMMARY 37. CSMP SUMMARY: SHAFT SCORED/UNDERSIZED FIRST CONTACT/ MAINTENANCE MAN 38. FIRST CONTACT/ MAINTENANCE MAN: PAYNE MM1 COMMANDING OFFICER'S SIGNATURE 39. COMMANDING OFFICER'S SIGNATURE: </div> <div> SPECIAL PURPOSE 40. SPECIAL PURPOSE: A. B. C. D. E. F. G. H. I. J. K. L. SECOND CONTACT/ SUPERVISOR 41. SECOND CONTACT/ SUPERVISOR: HARRIS ENC TYCOM AUTHORIZATION 42. TYCOM AUTHORIZATION: </div> <div> INTEGRATED PRIORITY 43. INTEGRATED PRIORITY: 41. PRI. 1 42. T/A 2 IUC SCREENING 44. IUC SCREENING: TYCOM SCREENING 45. TYCOM SCREENING: </div> </div>																																																																																				
SECTION V. SUPPLEMENTARY INFORMATION																																																																																				
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Figure 2-5.—OPNAV 4790/2R, Automated Work Request (AWR).

SHIP'S CONFIGURATION CHANGE FORM				OPNAV 4790/CK (5-84)		CONFIG FILE CORR		COMP MIA NO DEFL		COMP DEFL			
S/N 0107-LF-047-9001													
SECTION I JOB IDENTIFICATION													
JOB CONTROL NUMBER				ALTERATION IDENTIFICATION									
1 SHIP'S UIC		2 WORK CENTER		3 JOB REQ NR		4 ALTERATIONS (SHIPALY, PLO CHS, ETC)							
5 SHIP'S NAME				6 HULL NUMBER				7 EIC		8 ACTION			
9 EQUIPMENT HOUR NAME				10 SP HOURS EXP		11 ACT MANT TIME		12 COMP DATE		13 MNR			
SECTION II JOB DESCRIPTION/REMARKS													
14 JOB DESCRIPTION/REMARKS													
SECTION III COMPONENT CONFIGURATION CHANGE IDENTIFICATION													
15 COMPONENT HOUR NAME										16 QUANTITY		17 CA	
18 COMPONENT IDENTIFICATION				19 COMPONENT SERIAL NUMBER									
20 COMPONENT APU/UEL				21 LOCATION (DECK/FRAME/SIDE)				22 EIC					
23 NEXT HIGHER ASSEMBLY				24 E A C				25 WORK CENTER					
26 NAMEPLATE DATA													
27 MIP													
28 EOB													
29 TM													
SECTION IV SPECIAL PURPOSE													
30 RIN				31 ALB/N				32 BECA OFFICE USE					
-INSTRUCTIONS-													
ITEM NUMBER		SECTION I & II DESCRIPTION		PAGE 1		PAGE 2		LEGEND					
1-3		JOB CONTROL NUMBER		M		M		1A IF AVAILABLE O OPTIONAL 1P IF APPLICABLE NR NOT REQUIRED 1M MANDATORY					
4		ALTERATION IDENTIFICATION		1P		1P							
5		EQUIPMENT IDENTIFICATION CODE		M		NR							
6		ACTION TAKEN		M		NR							
7		EQUIPMENT HOUR NAME		M		NR		SECTION I: BLOCK 6 ACTION TAKEN SECTION II: BLOCK 15 COMPONENT ACTION					
8		SHIP'S FORCE MANHOURS EXPENDED		M		NR							
9		ACTIVE MAINTENANCE TIME		M		NR		MA - PARTIALLY COMPLETED ALTERATION MB - FULLY COMPLETED ALTERATION MC - FULLY COMPLETED EQUIVALENT TO ALTERATION MD - ALTERATION DIRECTIVE NOT APPLICABLE 1 - MAINTENANCE ACTION COMPLETED PARTS DRAWN FROM SUPPLY (LOCAL MANUFACTURE, PRE-EXPENDED BINS) 2 - MAINTENANCE ACTION COMPLETED REQUIRED PARTS NOT DRAWN FROM SUPPLY (LOCAL MANUFACTURE, PRE-EXPENDED BINS) 3 - MAINTENANCE ACTION COMPLETED NO PARTS REQUIRED R - REMOVED EQUIPMENT I - INSTALLED EQUIPMENT M - MODIFIED EQUIPMENT CONFID FILE CORR NO MAINTENANCE ACTION A - ADDITION OF RECORD D - DELETION OF RECORD C - CORRECT/CHANGE EXISTING RECORD					
10		COMPLETION DATE		M		NR							
11		METER READING		1P		NR							
12		JOB DESCRIPTION (REMARKS)		O		NR							
ITEM NUMBER		SECTION III DESCRIPTION		REMOVE (RO)		INSTALL (IA)						MODIFY (MC)	
13		COMPONENT HOUR NAME		M		M						M	
14		QUANTITY		M		M						M	
15		COMPONENT ACTION		M		M						M	
16		COMPONENT IDENTIFICATION		1P		1P						1P	
17		COMPONENT SERIAL NUMBER		1A		1A						1A	
18		COMPONENT APU/UEL		M		1A		1A					
19		LOCATION		M		M		M					
20		EQUIPMENT IDENTIFICATION CODE		NR		1A		NR					
21		NEXT HIGHER ASSEMBLY		1P		1P		1P					
22		SERVICE APPLICATION CODE		1A		1A		1A					
23		WORK CENTER		NR		M		NR					
24		NAMEPLATE DATA		NR		M		NR					
25		MAINTENANCE INDEX PAGE		1A		1A		1A					
26		EOB		1P		1P		1P					
27		TECH MANUAL NUMBER		1A		1A		1A					
WORK CENTER SUPERVISOR		DIVISION OFF		SUPPLY DEPT		3 M COORDINATOR		SHIP SEQUENCE NUMBER		PAGE _____ OF _____			

Figure 2-6A.—OPNAV 4790/CK, Ship's Configuration Change Form.

OPNAV 4790/CK(C)

Figure 2-6B.—OPNAV 4790/CK(C), Ship's Configuration Change Form Continuation Page

SHIP SYSTEM	SUBSYSTEM	MRC CODE R-286 M-5	
SYSTEM	EQUIPMENT AN/SPS-52A Radar Set	RATES FTMJ FTSM	M/H 2.0 2.0
MAINTENANCE REQUIREMENT DESCRIPTION 1. Test receiver alignment.		TOTAL M/H 4.0 ELAPSED TIME 2.0	
SAFETY PRECAUTIONS 1. Forces afloat comply with Navy Safety Precautions for Forces Afloat, OPNAVINST 5100 series. 2. When BATTLE SHORT or DOOR INTLK BYPASS switches are ON, protective interlocks are bypassed and voltages dangerous to life are accessible when equipment is open. Do not work alone.		TOTAL M/H 4.0 ELAPSED TIME 2.0	
TOOLS, PARTS, MATERIALS, TEST EQUIPMENT 1. Adapter, UG-28A/U. 2. 4" Adjustable wrench 3. 4" Normal duty screwdriver 4. Multimeter, AN/USM-311 (SCAT 4245) 5. Pulse Generator, SG-816/U (SCAT 4409) 6. Oscilloscope, AN/USM-281A (SCAT 4308) 7. Signal Generator, HEWLETT-PACKARD-8616A (SCAT 4374)		are ON, dangerous to work alone.	
PROCEDURE Maintenance procedure with this requirement is CONFIDENTIAL. Maintenance Requirement Card is stowed in _____		CONFIDENTIAL	
LOCATION	DATE January 1986	January 1986	

MAINTENANCE REQUIREMENT CARD (MRC)
OPNAV FORM 4700-1

MAINTENANCE REQUIREMENT CARD (MRC)
OPNAV FORM 4700-1

MAINTENANCE REQUIREMENT CARD (MRC)
OPNAV FORM 4700-1

Figure 2-7.—Maintenance Requirement Cards

the “who, what, when, how, and with what resources” associated with a specific maintenance requirement. (See figure 2-7.)

Some MRCs have equipment guide lists (EGLs) accompanying them to serve as location guides for a number of identical equipments. A blank EGL is shown in figure 2-8.

List of Effective Pages (LOEP)

The work center LOEP contains a list of the Maintenance Index Pages (MIPs) and a brief description of the systems and equipments in the work center.

Maintenance Index Page (MIP)

A MIP contains a brief description of the maintenance requirements on all the MRCs for each item of equipment.

Schedules

Maintenance is scheduled on cycle, quarterly, and weekly schedules.

Cycle Schedule-Displays the PMS requirements to be performed during the period between major overhauls.

Quarterly Schedule-Displays each work center's PMS requirements to be performed during a specific 3-month period.

Weekly Schedule-Displays the planned maintenance scheduled for accomplishment in a work center during a specific week.

PMS Feedback Report (FBR)-OPNAV 4790/7B

The PMS feedback report, shown in figure 2-9, provides the command with an easy method of

EQUIPMENT GUIDE LIST <small>OPNAV 4790/81 (2-76)</small> <small>S/N 0107-LF-047-9405</small>				<div style="display: flex; justify-content: space-between;"> PAGE OF </div> <div style="display: flex; justify-content: space-between; height: 20px; border-bottom: 1px solid black;"></div>			
<small>MIP NO (Last four characters)</small>		<small>MRC PERIODICITY</small>					
EQUIPMENT NAME NOMENCLATURE	SERIAL NO. QUANTITY	LOCATION	APPLICABLE DATA AS REQUIRED BY MRC				

Figure 2-8.—Standard Equipment Guide List (EGL).

recommending changes to maintenance requirement cards, ordering MRCs that have been lost or mutilated, and notifying the systems commands of any discrepancies in coverage.

The FBR is a five-part form composed of an original and four copies. Instructions for preparing and submitting the form are printed on the back of the last copy as illustrated in figure 2-10. You can obtain these forms through the Navy Supply System. For detailed instructions on 3-M procedures, refer to OPNAVINST 4790.4B.

THE TECHNICAL LIBRARY

Now that we have discussed the paperwork needed to complete maintenance actions, we will look at the technical library that should be setup and maintained to provide technicians the technical documents they need to perform maintenance.

In the following paragraphs we will discuss various manuals and publication that will give you a good starting point for a technical library.

PUBLICATION APPLICABILITY LISTING (PAL)

The PAL lists technical manuals, operating instruction charts, performance standards sheets, maintenance standards books, and technical manual

changes for operating and maintaining onboard systems and equipments that are under the technical cognizance of NAVSEASYS COM.

The PAL is produced from the Ships' Technical Publications System, NAVSEA's technical manual information system, and is maintained by the Naval Ship's Data Support System (NSDSS), Port Hueneme, California. Although the PAL provides assistance in determining the publications needs of the ship or shore station to which it applies, it is not a list of required publications.

The PAL contains four separately bound volumes, each having two parts:

- Volume 1—General Publications
 - Part 1—Electronics, HM&E, and Miscellaneous
 - Part 2—Weapons

Volume 1 lists only general and ship-applicable publications that do not relate to equipments or systems. It does not include any of the publications that appear in Volumes 2, 3, and 4.

- Volume 2—Electronics
 - Part 1—Equipment sequence
 - Part 2—Publication sequence
- Volume 3—HM & E

REPORT SYMBOL OPNAV 4790-4	
SEE INSTRUCTIONS ON BACK OF GREEN PAGE	
FROM (SHIP NAME AND HULL NUMBER)	SERIAL #
U.S.S. MIDWAY (CV-41)	2596-89
DATE	
TO	
<input checked="" type="checkbox"/> NAVAL SEA SUPPORT CENTER <u>PACIFIC</u> (Category A)	
<input type="checkbox"/> TYPE COMMANDER (Category B)	
SUBJECT: PLANNED MAINTENANCE SYSTEM FEEDBACK REPORT	
SYSTEM, SUB-SYSTEM, OR COMPONENT	APL/CID/AN NO./MK. MOD.
SYSKOM MIP CONTROL NUMBER	SYSKOM MRC CONTROL NUMBER
DESCRIPTION OF PROBLEM	
CATEGORY A	CATEGORY B
<input checked="" type="checkbox"/> MIP/MRC REPLACEMENT	<input type="checkbox"/> TECHNICAL <input type="checkbox"/> TYCOM ASSISTANCE <input type="checkbox"/> OTHER (Specify)
REMARKS	
MIPs only, 1 each A-33/109-87 EL-11/128-67 MIPs and MRCs E-11/62-18 2 each F-6/7-87 1 each MRCs only, 5 each (MIP E-14/749-22) 69 T965 S	
ORIGINATOR & WORK CENTER CODE	DIV. OFFICER
<u>EX00</u>	<u>[Signature]</u>
DEPT. HEAD	3-M COORDINATOR
<u>[Signature]</u>	<u>[Signature]</u>
Originator do not write below. For TYCOM use only.	
TYCOM <input type="checkbox"/> CONCUR <input type="checkbox"/> DO NOT CONCUR <input type="checkbox"/> TAKES ACTION <input type="checkbox"/> PASSES FOR ACTION	
TYCOM REP SIGNATURE	DATE
OPNAV 4790/7B (Rev. 9-89) ACTION COPY PAGE ____ OF ____ S/N 0107-LF-007-8000 EDITION OF 3-84 MAY BE USED UNTIL EXHAUSTED	

Figure 2-9.—OPNAV 4790/7B, PMS Feedback Report (FBR).

Part 1—Equipment sequence
 Part 2—Publication sequence

• Volume 4—Weapons

Part 1—Equipment sequence
 Part 2—Publication sequence

MAINTENANCE STANDARDS HANDBOOKS

Maintenance standards handbooks describe a series of specially developed preventive maintenance procedures that, when performed as directed, will reveal areas of subnormal performance and provide for

1. ORIGINATOR:

- a. Typewritten copies are preferred, however handprinted copies are acceptable. Use ballpoint pen and ensure all copies are legible.
- b. EQUIPMENT IDENTIFICATION: Fill in titled blocks that apply. Give as much information that can be determined. Ensure that current APL number is used for hull, mechanical or electrical equipment or electronic/weapons equipment which does not have an Army-Navy number or mark/mod designation.
- c. DESCRIPTION OF PROBLEM: Check the appropriate box.
 - Category A
 - (1) MIP/MRC REPLACEMENT: Ensure that PMS documentation request is current in accordance with latest SFR. For missing MIP's/MRC's, give SYSCOM control numbers when they can be determined. If SYSCOM control numbers cannot be determined, provide as much nameplate data as can be obtained. When ordering a variety of missing worn MIP's/MRC's, the subject section shall be left blank.
 - Category B
 - (2) TECHNICAL: (a) Identify specific discrepancy discovered in PMS by MRC control number, step number, etc.
(b) For publication discrepancies identify publication by number, volume, revision date/number, change number, page, paragraph and or figure as appropriate.

THIS FORM WILL NOT BE USED TO ORDER PUBLICATIONS.

- (3) TYCOM ASSISTANCE: Includes clarification of J-M instructions and other matters related to PMS administration.
- (4) OTHER: Identify in detail any problem not covered by (1) through (3) above. Shifts of maintenance responsibility will be reported under this item. Ensure that all work centers involved in the change are identified by work center code. Approval by the Executive Officer will be shown in the "Remarks".
- d. REMARKS: Provide brief, but complete, description of problem or requirement. Executive Officer indicate approval of maintenance responsibility shift by endorsement. Use additional forms if more space is required. Mark additional forms, "page 2 of 2", "page 2 of 3", etc. Staple additional forms behind basic form.
- e. ORIGINATOR IDENTIFICATION: Sign and insert work center code in appropriate space.

2. DIVISION OFFICER: Review for accuracy and completeness and sign in the space provided.

3. DEPARTMENT HEAD: Review for accuracy and completeness and sign in the space provided.

4. J-M COORDINATOR:

- a. Serialize, date and sign in the appropriate spaces.
- b. Routing Instructions: For category "A" FBR's forward the white and yellow copies to the appropriate NAVSEACEN and the pink copy to the TYCOM. For category "B" FBR's forward the white, yellow and pink copies to the TYCOM. Retain blue copy in suspense file. Return green copy to the originator.

OPNAV 4790/78 (Back)

Figure 2-10.—Instructions for Preparing the PMS Feedback Report (reverse side of FBR form).

effective mechanical and electrical maintenance of the equipment. The installing activity performs those procedures on the equipment when it is operating properly and publishes the results as "designated reference standards." The designated reference standards collectively represent normal performance. This allows you to compare the results of a scheduled

test with the reference standards to identify, properly analyze, and correct abnormalities.

NAVAL SHIPS' TECHNICAL MANUAL (NSTM)

The NSTM is a set of books (chapters) that contain general information on a variety of topics. You can find

a complete listing of the NSTM chapters in chapter 001, *General - NSTM Publications Index and User Guide*. The chapters we have listed below are related to your job, both as a technician and as a member of a ship's or station's organization.

NSTM Chapter 79-Practical Damage Control (DC)

This chapter provides broad guidance for establishing a DC organization. This guidance is designed to help organizations plan before damage occurs, spend a minimal amount of time localizing damage that does occur, and make emergency repairs or restoration as quickly as possible after damage occurs.

NSTM Chapter 300-Electrical Plant

This chapter provides information and instructions on electrical equipment, electrical safety precautions, electrical insulation and insulation resistance, and maintenance reconditioning of electrical equipment. It provides the requirements we, as ETs, must meet in a shipboard safety program, including use and maintenance of organizational electrical and electronic equipment and personal electrical and electronic equipment.

NSTM Chapter 400-Electronics

This chapter provides major policies and instructions pertaining to maintenance of electronic equipment and safety information aboard active and reserve ships.

NSTM Chapter 631-Preservation of Ships in Service

This chapter provides instructions, requirements, and information for prevention of corrosion of ships, boats, and small craft. Topics include surface preparation, painting, and application of other preventive measures.

NSTM Chapter 634-Deck Coverings

This chapter provides information concerning materials, installation procedures, maintenance and

repair of deck coverings, gratings, sealing methods, and caulking compounds used for sealing deck seams.



ELECTRONICS INSTALLATION AND MAINTENANCE BOOK (EIMB)

The EIMB is the medium for collecting, publishing, and distributing, in one convenient source, safety information, maintenance policies and philosophies, installation standards and practices, and overall electronic equipment and material-handling procedures required by Chapter 400 of the *Naval Ships' Technical Manual*. The EIMB is organized into a 13-volume series of individual books.

EIMB General Handbook

This handbook provides data pertaining to administration, supply, publications, and safety matters, and contains the subject index for information contained in the other handbooks.

EIMB Installation Standards Handbook

This handbook issues approved standards, techniques, and practices for the installation of electronic equipment aboard ships.

EIMB Electronic Circuits Handbook

This handbook provides the theory of operation and circuit description of basic vacuum tube and semiconductor circuits.

EIMB Test Methods and Practices Handbook

This handbook provides technicians with reference information on the fundamentals of test methods and basic measurements, step-by-step procedures for testing typical electronic circuits and equipment, and fictional descriptions of the theory of operation of the test equipment used and circuits tested.

EIMB Reference Data Handbook

This handbook contains an encyclopedic presentation of useful and informative definitions,

abbreviations, formulas, and other general data related to electronics installations and maintenance.

EIMB EMI Reduction Handbook

This handbook contains techniques and procedures for the elimination or reduction of electromagnetic interference created by own force's electromagnetic radiating devices.

EIMB General Maintenance Handbook

This handbook contains routine maintenance concepts, techniques, and procedures common to all electronic and electrical equipment.

EIMB Equipment-Oriented Handbooks

For the basic equipment category, each of the six handbooks contains general servicing information; servicing information for specific equipments; a field change identification guide that provides field change information for all equipments of the basic equipment category; and functional descriptions common to the equipment of the basic equipment category. The six equipment-oriented handbooks are as follows:

1. Communications
2. Radar
3. Sonar
4. Test Equipment
5. Radiac
6. Countermeasures

Periodically, the equipment-oriented handbooks are updated by incorporating the *Engineering Information Bulletin* (EIB) articles. The EIMBs are an excellent source of basic information that can be used as a training tool for your workcenter. If space is available, you will benefit from having a complete set for your technical library.

OTHER PUBLICATIONS

There are many other useful publications throughout the fleet. However, because of the vast number, we will only describe a few in the following paragraphs.

Shipboard Antenna Systems Manuals

These five manuals serve as a source of information for personnel concerned with the installation and maintenance of shipboard antennas. The information they contain supplements, but does not supersede, existing specifications. The following is a list of what each volume contains:

- Volume 1—Communications Antenna Fundamentals
- Volume 2—Installation Details, Communications Antenna Systems
- Volume 3—Antenna Couplers, Communications Antenna Systems
- Volume 4—Testing and Maintenance, Communications Antenna Systems
- Volume 5—Antenna Data Sheets

Miniature/Microminiature (2M) Electronic Repair Program

While this publication (three volumes under one cover) gives procedures and techniques, personnel must be formally trained and certified to make high-quality, reliable repairs to state-of-the-art electronic printed circuits and modules.

Shipboard Bonding, Grounding, and Other Techniques for Electromagnetic Compatibility and Safety, Military Standard 1310 (NAVY)

The requirements of this standard apply to all new shipboard installations and to any part of an existing installation that is being modified. The procedures and methods specified in this standard apply to any situation that requires the technician to (1) bond, ground, insulate, or use nonmetallic materials to provide electromagnetic compatibility; (2) provide personnel safety from electrical shock hazards; (3) safeguard electrical transmissions of classified information; and (4) provide a dc reference ground. We recommend this publication as a MUST reading assignment for all Electronics Technicians.

Electromagnetic Radiation Hazards (Hazards to Personnel, Fuel, and Other Flammable Material)

This manual prescribes operating procedures and precautions to prevent injury to personnel, ignition of

volatile vapors, and premature initiation of electroexplosive devices in ordnance caused by exposure to environmental electromagnetic radiation.

Data in this manual are provided in two volumes as follows:

- Volume I
Hazards to Personnel, Fuel, and Other Flammable Material (U)
- Volume II
Part I–Hazards to Unclassified Ordnance Systems (U)
Part II–Hazards to Classified Ordnance Systems (U)

Volume I and Volume II, Part One, are unclassified. All classified data are contained in Volume II, Part Two.

Installation Criteria for Shipboard Secure Electrical Information Processing Systems, Military Standard 1680 (SHIPS)

This standard sets forth the design and installation criteria that apply to shipboard secure electrical information processing systems, including detailed hardware and equipment requirements and the applicable inspection and reporting procedures and documentation. Installation and maintenance technicians of these processing systems **MUST** be well versed in the contents of this standard.

General-Purpose Electronic Test Equipment, Military Standard 1364 (Series) (NAVY)

This standard identifies standard General-purpose Electronic Test Equipment (GPETE), GPETE support items, and General Use Portable Electrical Equipment (GUPEE) that are suitable for Navy use and for which the Naval Sea Systems Command exercises material support responsibility by management of item entry. This standard also establishes uniform procedures for submission of applications to procure nonstandard GPETE.

Military Specification Manuals, Technical: Functionally Oriented Maintenance Manuals (FOMM) for Electronic, Electromechanical, and Ordnance Equipment Systems, and Platforms, Military Specification Mil-M-24100C

This specification sets forth the content and format requirements for FOMMS, and their revisions and changes, necessary for the installation operation, repair (organizational-level, intermediate-level, and depot-level), and parts support of equipment, systems, and subsystems without the services of manufacturer's representatives.

Procedures for Conducting a Shipboard Electromagnetic Interference (EMI) Survey (Surface Ships), Military Standard 1605 (SHIPS)

This standard provides detailed procedures for conducting an electromagnetic interference survey aboard surface ships.

Navy Electricity and Electronics Training Series (NEETS)

At present there are 24 NEETS modules. These modules contain a vast amount of information from an introduction to matter, energy, and direct current to an introduction to fiber optics.

The NEETS modules are high quality training aids as well as excellent review publications for basic electronics for all ETs.

CATALOGS, LISTS, INDEXES, AND DIRECTORIES

The following paragraphs will discuss catalogs, lists, indexes and directories of electronic equipment.

Equipment Identification Code (EIC) Master Index

This index provides a listing of equipment identification codes (EICs) in two sections. Section I lists EIC numbers in numerical sequence and identifies the equipment nomenclature assigned to each EIC number. Section II is the complement of Section I. It lists nomenclature in alphanumerical sequence and identifies the EIC numbers assigned to equipment.

Guide for User Maintenance of NAVSEA Technical Manuals

The maintenance of up-to-date technical manuals aboard your command is essential to the operational readiness of the command systems and equipment. This guide will be an important part of the technical library.

Electrostatic Discharge Control Handbook for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding electrically initiated explosive devices) (METRIC), Military Handbook 263A

This handbook provides guidance, not requirements, for the establishment and implementation

of an Electrostatic Discharge (ESD) Control Program according to the requirements of MIL-STD-1686. This document applies to the protection of electrical and electronic parts, assemblies and equipment from damage due to ESD. It does not provide information for the protection of electrically initiated explosive devices.

Metrology Automated System for Uniform Recall and Reporting (MEASURE) User's Manual

This manual outlines the procedures that apply to Navy calibration facilities using the system, ship and shore activities obtaining services from them, and other military activities whose use of MEASURE is in effect.

